SECTION 4
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the existing conditions of the natural and human environmental resources that were investigated as part of this study. It also discusses the impacted resources and the environmental consequences. Those impacts with a reasonable possibility for individual or cumulative significant impacts were analyzed further. The results are discussed below.

4.1 Relocations

To construct the proposed project, permanent fee right-of-way and grading permits will be required at the time of right-of-way acquisition.[1] New right-of-way that MDOT will likely need to acquire is identified in the Engineering Report[2] prepared for this project. Acquisition of right-of-way will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. A *Conceptual Stage Relocation Plan* (Appendix A) was developed based on a review of real estate available in the corridor. It was determined that there are an adequate number of residences and business properties for sale to allow relocation without hardship.

Physical features of the project that will require right-of-way acquisition are:

- The lane addition;
- 12 Mile Road and I-75 interchange;
- "Braiding" of ramps north of I-696;
- Reconstruction of pedestrian bridges; and
- Storm water detention.

The proposed lane addition itself will not require the relocation of any dwelling units. Right-of-way acquisition will be minor, approximately one acre. One business currently encroaches on the existing right-of-way and another is so close that it cannot be avoided. So, two businesses must be relocated. These are in Hazel Park. Also in Hazel Park, about 16 parking spaces could be needed from one commercial area, and about 17 spaces of 380 spaces could be required from a church.

Excess right-of-way will actually be created at the 12 Mile interchange, if the single-point urban interchange (SPUI) is incorporated in the Recommended Alternative (although strips of right-of-way totaling about one acre [no relocations] would be necessary along 12 Mile Road). Approximately five acres of land will become available at this location, as the new interchange has a smaller footprint than the existing one. This land could support carpool, park-and-ride, or other transportation facilities. If the interchange were reconstructed in a similar configuration

[1] Grading permits allow MDOT to temporarily enter private property to make minor grading changes - those that will not alter the permanent nature of the ground significantly or negatively. Basically, MDOT pays a fee for "renting" the property for a short period of time to make these minor changes. Often the result is an improved driveway grade. If a large grade change is made, mitigation may be necessary, i.e. timber retaining walls, vegetation, etc. Decisions on grading permits are made during the design phase.
[2] *Engineering Report,* The Corradino Group and Orchard Hiltz and McCliment, October 2003.

(with the elimination of the loop ramp in the northwest quadrant), no right-of-way acquisition would be necessary.

Right-of-way will be required for the "braiding" of ramps north of I-696. This safety and operational improvement could relocate eight single-family dwellings. The land taken would be approximately 1.5 acres.

Approximately an acre of right-of-way will be required as six pedestrian bridges are reconstructed. The clearances under the bridges must increase (for safety) and reconstruction must be in accordance with the Americans with Disabilities Act (ADA), which requires more gradually sloping ramps and, therefore, more land. Steps will be provided, where feasible, in addition to the ramps to provide more direct routings for ambulatory persons. The pedestrian bridge at Harry Avenue could require the relocation of three homes. For this reason, an option would be to remove the bridge without replacement, and relocate no homes (see Section 4.2.2). The relocation impacts of the pedestrian bridges would be refined during the design phase when more detailed information is available.

Storm water pump stations in the depressed section of the corridor will be relocated to avoid right-of-way acquisition. Storm water detention requirements in the north section of the project could require right-of-way acquisition of up to seven acres in Troy southeast of Rochester Road. Further analysis will refine the acreage needed. Detention will be designed to avoid relocations. The option always exists of managing the storm water within the right-of-way, however, this option is more costly.

A summary of relocations is presented in Table 4-1. Adequate housing is available close to the residential units that would be relocated, and sufficient commercial space is likewise available.

Table 4-1
Relocation Summary

IMPROVEMENT	DISPLACEMENTS
Lane Addition	2 businesses
Ramp Braiding	8 single-family dwellings
Pedestrian Bridges	3 single-family dwellings
Storm Water Detention	None

Source: The Corradino Group of Michigan, Inc., Rowe, Inc., and Orchard, Hiltz, and McCliment

4.2 Social Impacts / Community Cohesion

This section reviews the relationship of the project to community facilities, pedestrian access and bicycle use, mass transit service and carpooling, maintaining local and regional access during construction, population, employment trends, and other socioeconomic characteristics.

The section of I-75 south of 12 Mile Road follows an historic travel corridor. The neighborhoods that grew up around this corridor after World War II were thus divided by a wide right-of-way from the time of their origin. The creation of I-75 within this right-of-way did, however, have an effect on access across the right-of-way, as the construction of the freeway and its depression meant that travel across I-75 could occur only at vehicular and pedestrian bridges. North of 12

Mile Road, development mostly occurred with I-75 in place. In other words, development exists today where it does, because of I-75.

Community cohesion will not change with the proposed project, as the basic footprint of I-75 will not change. A possible exception would be if the Harry Avenue pedestrian bridge (Section 4.2.2) were not replaced because of its potential taking of three homes. If it were not replaced, those living to the north of the bridge would have to walk another minute (approximately 300 feet) longer to use the surface street connection. Pedestrian and bicycle access across the freeway will be improved. The United Oaks Elementary School and First Free Will Baptist Church have been contacted to discuss removal of the bridge. It is anticipated they will participate in the public hearing.

4.2.1 Community Facilities

Community facilities such as emergency services (fire, emergency medical, and police), schools, medical centers, and other institutions are described below from south to north (Figure 4-1).

Emergency Services (Fire, Emergency Medical and Police)

Fire stations in close proximity to I-75 are located at:

- The city offices of Madison Heights on the north side of 13 Mile Road. This office also houses the community's ambulance service. 13 Mile Road does not connect to I-75. There would be no effect on this station or its services.
- Troy Fire Station No. 6 is on the west side of Coolidge Highway and south side of I-75. Coolidge Highway does not connect to I-75. There would be no effect on this station or its services.

When noise walls are built, provisions must be made for fire hydrant access through the walls. Discussions with all adjacent municipalities will be necessary during the design phase to identify these locations, and other locations where emergency access through the wall may be necessary.

Police stations in the vicinity of I-75 are:

- Hazel Park - 111 East 9 Mile Road;
- Ferndale - 310 East 9 Mile;
- Madison Heights - 280 West 13 Mile Road;
- Royal Oak - 221 East Third Street; and
- Troy – 500 West Big Beaver Road.

There are no median cuts for emergency vehicles in the depressed portion of the I-75 project length. There were numerous median cuts between 12 Mile Road and Square Lake Road until a median safety barrier was installed in 2001. Crossovers are now present at only three locations: north of 13 Mile Road, south of Long Lake Road, and midway between Crooks Road and Coolidge Highway. With the construction of the median concrete safety barrier proposed with this project, these three existing median crossovers would be closed. With this project, emergency vehicles will use interchanges to get from the northbound lanes to the southbound lanes and vice versa.

Hazel Park requested that the crossover bridges north and south of 9 Mile Road be moved further away from 9 Mile Road for capacity purposes, and the plan does so. In addition, these crossovers will be widened to accommodate larger trucks, including fire apparatus.

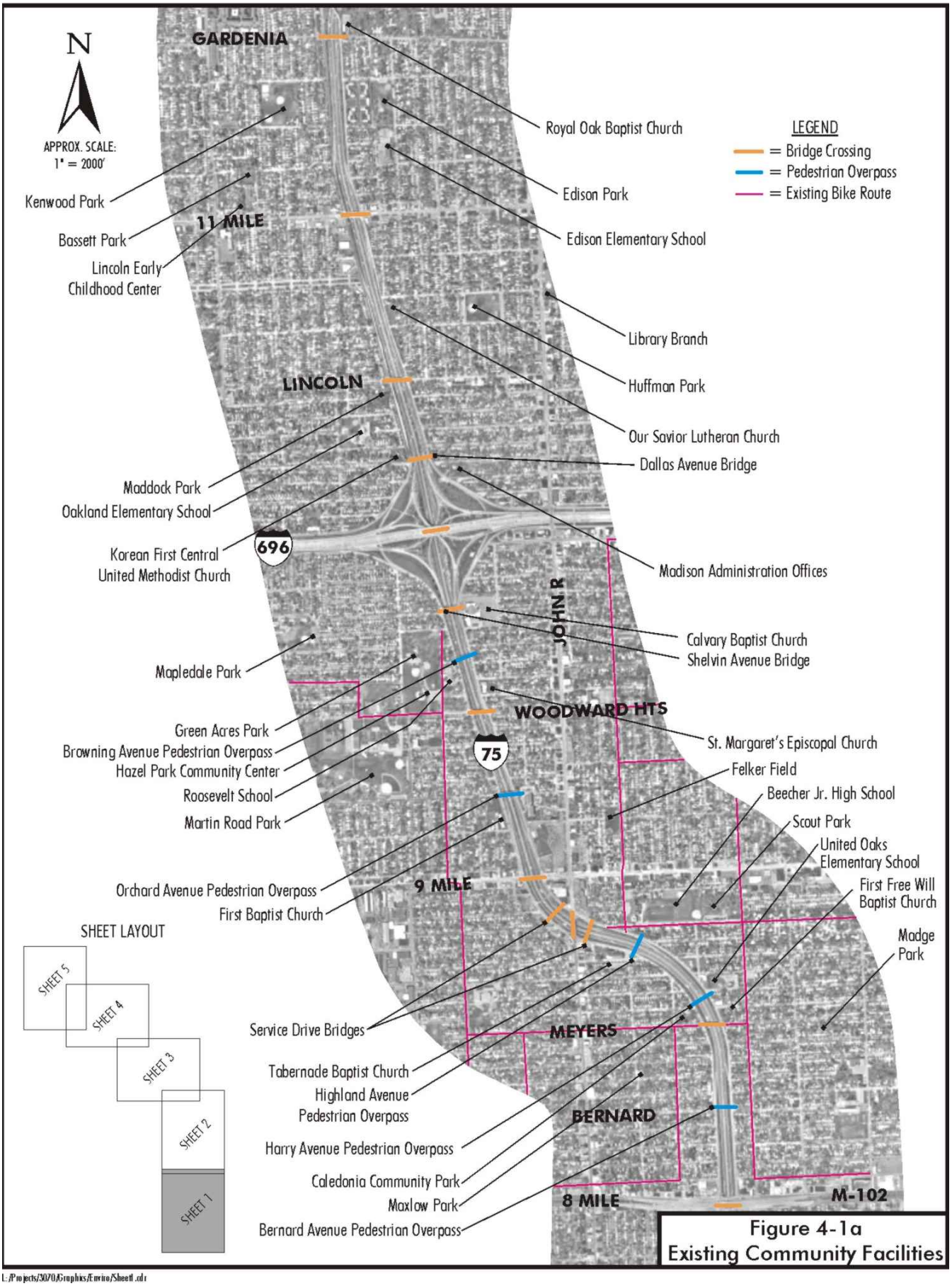

Figure 4-1a
Existing Community Facilities

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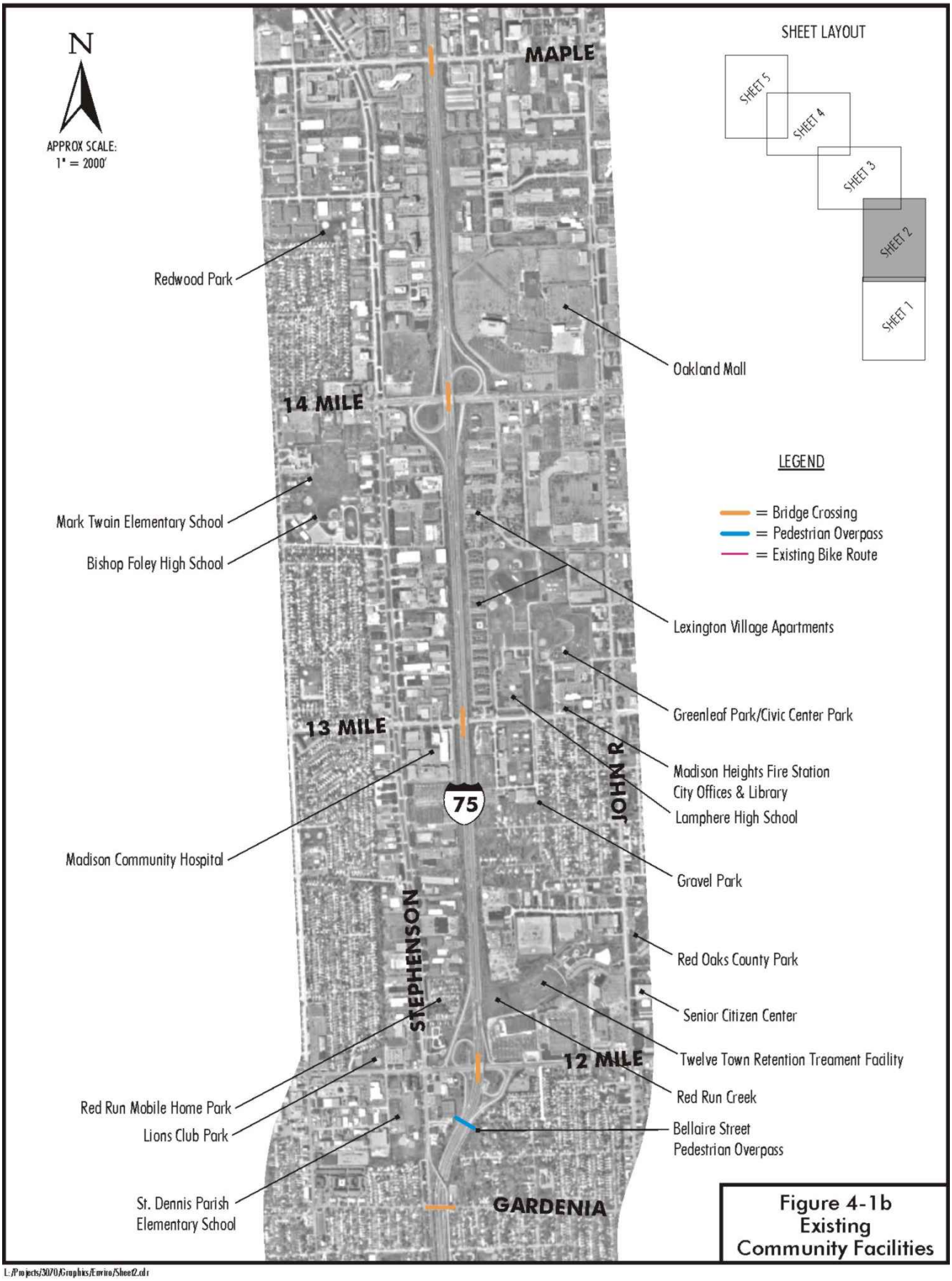

Figure 4-1b
Existing Community Facilities

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Figure 4-1c
Existing Community Facilities

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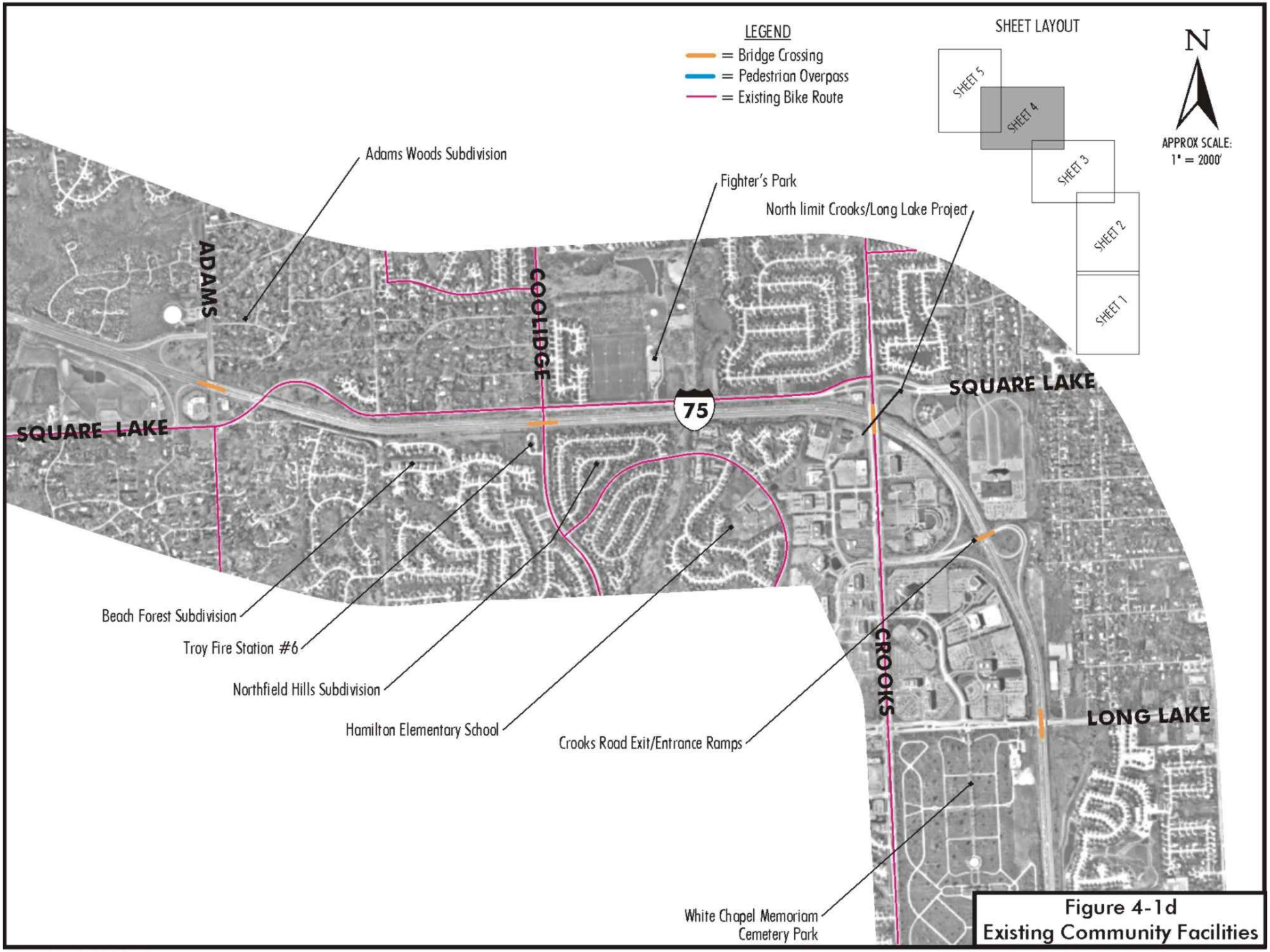

Figure 4-1d
Existing Community Facilities

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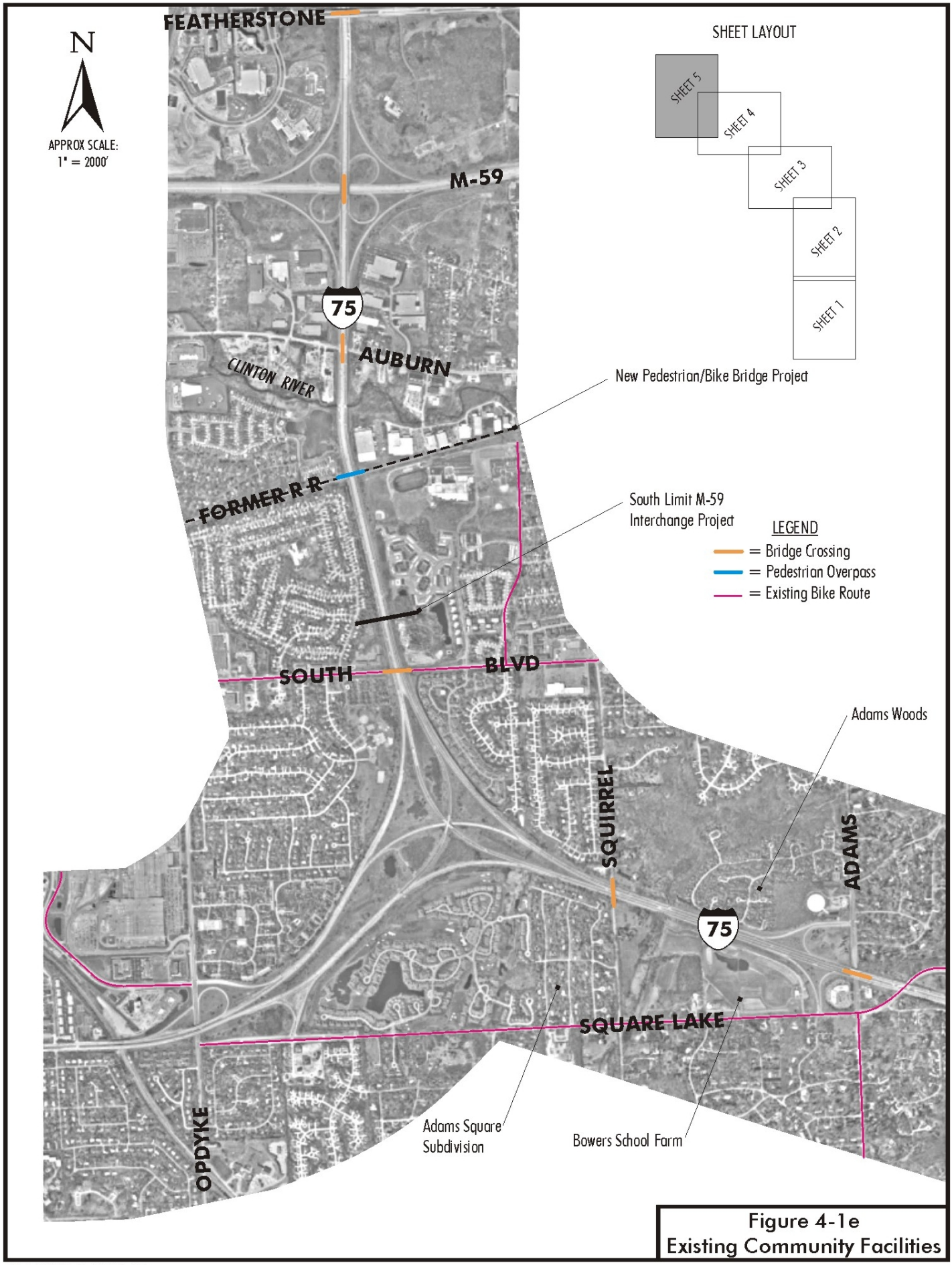

Figure 4-1e
Existing Community Facilities

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Schools

Each municipality has its own school district, with each providing bus services to its schools. No routes use I-75. Conversations with school officials did not indicate any problems with the planned I-75 improvements related to bus use. Schools along I-75 are listed below.

- The United Oaks Elementary School is on the north side of Harry Avenue, one block east of I-75. The grounds are extensive. A new school building (2003) is approximately 150 feet from I-75. There would be no effect on school access or functions, except that the pedestrian bridge over I-75 at Harry Avenue that serves this school may not be replaced, as replacement could require displacement of three homes (Section 4.2.2).
- Beecher Junior High School is one block south of 9 Mile Road on the east side of I-75. The school is being reconstructed. The existing main building is approximately 250 feet from I-75. There would be no effect on school access or functions. The pedestrian bridge over I-75 at Highland Avenue serving this school would be reconstructed. As the clearance height under the bridge must be increased and the ramps lengthened to bring them up to ADA standards, there would be longer walks for school children.
- Roosevelt School serves special needs children. It is on the southbound service drive, just north of Woodward Heights Avenue. The students at this school would not be using the adjacent pedestrian bridge over I-75. There would be no effect on school access or functions. A grading permit may be needed during reconstruction of the service drive. Noise would increase in an imperceptible manner at this location, but a noise wall is reasonable and feasible and may be built.
- Oakland Elementary School is a block south of Lincoln Avenue, one block west of I-75. Access is off Brockton Avenue south of the school and Kalama Avenue north of the school. Both connect to the southbound service drive of I-75. There would be no effect on school access or functions.
- The Lincoln Early Childhood Center is on the north side of 11 Mile Road three blocks west of I-75. Its access is from 11 Mile Road. There would be no effect on school access or functions.
- The St. Denis Parrish Elementary School is on the west side of Stephenson Highway, on the south side of 12 Mile Road. There would be no effect on school access or functions.
- Bishop Foley High School is located north of 13 Mile Road three blocks west of Stephenson Highway. There would be no effect on school access or functions.
- Lamphere High School is on the north side of 13 Mile Road one block east of I-75. There would be no effect on school access or functions.
- Mark Twain Elementary School is on the east side of Campbell Road midway between 13 Mile Road and 14 Mile Road. Its access is from Campbell Road. There would be no effect on school access or functions.
- Morse Elementary School is in the southwest quadrant of the Rochester Road interchange, separated from I-75 by a condominium complex. Its access is from Robinwood Street. There would be no effect on school access or functions.
- Hamilton Elementary School is in the Northfield Hills Subdivision on Northfield Parkway. There would be no effect on school access or functions.
- Fields and open space of the Bowers School Farm is located adjacent to I-75 west of Adams Road. It is part of the science instructional program of Bloomfield Hills Schools, serving as a land laboratory for students from preschool through adult. Its

access is from Square Lake Road. There would be no effect on school access or functions.

In summary, United Oaks Elementary School could lose its pedestrian bridge, requiring some students to walk an additional minute (approximately 300 feet) to school and cross the I-75 service drives at a signalized intersection. Roosevelt School would be considered for a noise wall. A grading permit may also be necessary at Roosevelt School for reconstruction of the service drive.

Libraries

- Hazel Park Library is at 123 East 9 Mile Road. Its access is via 9 Mile Road. It is approximately 700 feet east of I-75. No facilities or parking would be affected.
- Ferndale Library is at 300 East 9 Mile Road. Its access is via 9 Mile Road. It is approximately 0.8 miles west of I-75. No facilities or parking would be affected.
- Royal Oak Library is at 222 East 11 Mile Road. Its access is via 11 Mile Road. It is approximately 1.4 miles west of I-75. No facilities or parking would be affected.
- Madison Heights Library is at 240 West 13 Mile Road. Its access is via 13 Mile Road. It is approximately 0.3 miles east of I-75. No facilities or parking would be affected.
- Troy Library is at 510 West Big Beaver Road. Its access is via Big Beaver Road. It is approximately 800 feet east of I-75. No facilities or parking would be affected.

No library facilities or parking would be affected by proposed improvements to I-75.

Government Offices and Services

- Hazel Park's offices are at 111 East 9 Mile Road, approximately 800 feet east of I-75. These would be unaffected.
- Ferndale's offices are at 300 East 9 Mile Road, approximately 0.8 miles west of I-75. These would be unaffected.
- Royal Oak's offices are at 211 South Williams Street, approximately 1.4 miles east of I-75. These would be unaffected.
- Madison Heights's offices are at 300 West 13 Mile Road, approximately 0.3 miles east of I-75. These would be unaffected.
- Troy's offices are at 500 West Big Beaver Road in the northeast quadrant of the I-75 Big Beaver interchange. These would be unaffected.
- Auburn Hill's offices are 1827 North Squirrel Road, approximately 1.0 mile east of I-75. These would be unaffected.

No government offices or services would be affected by proposed improvements to I-75.

Medical Facilities

- The Madison Community Hospital is south of 13 Mile Road at Stephenson Highway on the west side of I-75. It would be unaffected by the project.

No medical facilities would be affected by proposed improvements to I-75.

Churches

Churches contiguous to I-75 or along the service drive right-of-way are:

- First Free Will Baptist Church is on the northbound service drive, north of Meyers Avenue.
- Tabernacle Baptist Church is on the southbound service drive, north of Highland Avenue.
- First Baptist Church is on the southbound service drive, one block north of 9 Mile Road.
- St. Margaret's Episcopal Church is on the northbound service drive, one block north of Woodward Heights Boulevard.
- Calvary Baptist Church is on the northbound service drive at Shelvin Avenue, just south of I-696.
- Korean First Central United Methodist Church is on the southbound service drive at Dallas Avenue.
- Our Savior Lutheran Church is on the northbound service drive, one block north of Lincoln Avenue.
- Royal Oak Baptist Church is on the northeast corner of the northbound service drive and Gardenia Avenue.

Very minor strips of land (typically in the five- to ten-foot range) could be taken from the First Baptist Church, St. Margaret's Episcopal Church, Calvary Baptist Church, and the Korean First Central United Methodist Church, totaling 0.14 acres. The Calvary Baptist Church would lose 17 of 382 parking spaces and the Korean First Central United Methodist Church would lose its sign. The churches would be compensated in accordance with standard mitigation (see Section 5.1). Grading permits are possible at all the above-listed churches, and certainly from those whose property is affected.

Parks

- Hazel Park - Maxlow Park is about 0.1 miles north of 8 Mile Road off Madge Avenue, two blocks west of I-75.
- Hazel Park - Madge Park is about 0.5 miles north of 8 Mile Road off Madge Avenue, two blocks east of I-75.
- Hazel Park – Caledonia Community Park is just north of Meyers Avenue, one block west of I-75 on Caledonia Avenue.
- Hazel Park - Scout Park is south of 9 Mile Road off East Otis Avenue, three blocks east of I-75.
- Hazel Park - Felker Field is one block north of 9 Mile Road off of Felker Avenue, three blocks east of I-75.
- Ferndale - Martin Road Park is two blocks north of 9 Mile Road off Orchard Avenue, three blocks west of I-75.
- Hazel Park - Green Acres Park is south of I-696 off Woodward Heights Boulevard, one block west of I-75.
- Hazel Park – Mapledale Park is 0.2 miles south of I-696, three blocks west of I-75.
- Royal Oak – Maddock Park is south of Lincoln Avenue adjacent to the southbound I-75 service drive. It is the only park that is actually contiguous to a service drive.

- Royal Oak - Bassett Park is north of 11 Mile Road off University Avenue, four blocks west of I-75.
- Royal Oak - Kenwood Park is one block south of Gardenia Avenue off Forest Avenue, two blocks west of I-75.
- Madison Heights – Huffman Park is north of Lincoln Avenue, four blocks east of I-75.
- Madison Heights – Edison Park is midway between 11 Mile Road and Gardenia, two blocks east of I-75.
- Madison Heights – Lions Club Park is on the north side of 12 Mile Road, two blocks west of I-75.
- Madison Heights - Red Oaks County Park follows Red Run Creek between 12 Mile Road and 13 Mile Road, east of John R.
- Madison Heights – Gravel Park is two blocks south of 13 Mile Road and two blocks east of I-75.
- Madison Heights - Greenleaf Park/Civic Center Park is north of 13 Mile Road two blocks east of I-75.
- Troy – Redwood Park is north of 14 Mile Road and west of Stephenson Highway.
- Troy – Robinwood Park is in the southwest quadrant of the interchange of I-75 with Rochester Road.
- Troy – Troy Family Aquatic Center/Phillip J. Huber Park is at the north end of the Troy Civic Center in the northeast quadrant of the interchange of I-75 with Big Beaver Road.
- Troy – The Troy Historical Center is on the north side of Wattles Road 0.4 miles east of I-75.
- Troy – Firefighters Park is on the north side of Square Lake Road between Coolidge Highway and Crooks Road.

There will be no impacts to any of these parks.

4.2.2 Considerations Relating to Pedestrian Access and Bicycle Use

Hazel Park, Troy, and Auburn Hills have signed bike routes[3] that cross I-75 at Meyers Avenue, Big Beaver, Wattles Road, Crooks Road, Coolidge Highway, Square Lake, and South Boulevard (Figure 4-1). As a separate project, a bike path is bridging over I-75 on the former Grand Trunk Railroad alignment parallel to and south of Auburn Road. It is part of the Clinton River Trail planned to cross all of Oakland County.

Six pedestrian bridges now provide access across I-75 in the depressed section south of 12 Mile Road. These would be reconstructed with the project, because their supporting piers would be affected by the lane addition. The bridges are at: Bernhard Avenue, Harry Avenue, Highland Avenue, Orchard Avenue, Browning Avenue, and Bellaire Street.

The underclearance of the bridges must be increased two to three feet[4] and reconstruction must conform to the Americans with Disabilities Act (ADA), which requires more gradually sloping ramps. Together the effect is longer ramps and, therefore, more land. Steps could be provided,

[3] *Oakland County Linked Path/Trail System Map*, Oakland County Department of Community and Economic Development.

[4] Pedestrian bridges have an extra-high under-clearance of 17’3” over the service drives to prevent bridges from being hit by vehicles passing underneath.

where feasible, to provide more direct routings for ambulatory persons, as the ramp lengths would approximately double (from about 150 feet to 300 feet per ramp). The first five pedestrian bridges listed in the above paragraph are in Hazel Park. The last is in Madison Heights.

The Harry Avenue pedestrian bridge serves the United Oaks Elementary school and the First Free Will Baptist Church, located on the east side of I-75. If the pedestrian bridge were reconstructed to conform to ADA standards, three homes could be displaced. MDOT has contacted the elementary school and the church to discuss this issue. At this time several options are being investigated to see if the bridge could be replaced without displacing the homes. If the bridge were not replaced, pedestrians, including school children, would need to walk over surface streets. The pedestrians living north of Granet Avenue and west of I-75 would have to walk south one block to Meyers Avenue, cross the Meyers Avenue bridge over I-75, and then walk north two blocks to Harry Avenue. This walk over surface streets would be approximately 1250 feet. Taking into account the lengthened ramps of a new pedestrian bridge, the walk over such a bridge would be approximately 300 feet for each ramp and 400 feet across the freeway, for a total of 1000 feet. So, pedestrians walking via Meyers Avenue would have to walk 250 feet farther and cross both service drives at the signalized Meyers Avenue intersection. The walk time is approximately 2.5 minutes now over the pedestrian bridge. It would be 3.5 minutes over a new bridge or 4.5 minutes via Meyers Avenue. United Oaks School officials were contacted in September 2003. They are researching the effects on children.

In May 2002, officials of the municipalities along the corridor were interviewed to record their thoughts regarding pedestrian and bicycle activity related to I-75. These are noted by community from south to north. Likely design elements that would be part of any build alternative are provided after the comments.

Hazel Park

- Wants no reduction of pedestrian crosswalks.
- Sees opportunity to rework/refurbish pedestrian crosswalks, which desperately is needed.
- Desires screening on road bridges across I-75 that have sidewalks, especially the Woodward Heights Boulevard bridge.

Royal Oak

- Had no comments specific to pedestrian or bicycle needs.

Madison Heights

- Has pedestrian bridge over I-75 near Gardenia.
- Has a “Sidewalk Program and Gap Map” that highlights improvements and/or additions to the city’s sidewalk system, including the installation of sidewalks along the south sides of the 14 Mile Road/I-75 Bridge and the 12 Mile Road/I-75 Bridge. Has concerns about the timing of a proposed pedestrian path with the proposed changes to the 14 Mile Road Bridge. Currently have workers trying to access public transportation in a very unfriendly pedestrian environment.
- Desires new sidewalks.
- Wants true pedestrian access over all of the bridges – wheelchair ramps.
- Wants bicycle connections to go north/south as well as with other cities.
- Wants sidewalks for schools maintained. Currently children from one Madison Heights neighborhood at 11 Mile Road and the service drive go to a Royal Oak School on the other side of freeway.

Troy

- Desires sidewalks on at least one side of all bridges, as today – most of the sidewalks are underneath the interstate. There are appearance and safety issues concerning these pathways.
- Sees no need for any new exclusive pedestrian bridges.

Bloomfield Township

- Sees no issues if their existing infrastructure is not reduced. Few children cross I-75 to reach school – almost all children ride buses.

Auburn Hills

- Supports MDOT plans to build pedestrian bridge south of Auburn Road using old Grand Trunk Railroad right-of-way.
- Plans a comprehensive pedestrian trail along South Boulevard.
- Almost all children ride school buses to school – almost none directly cross the interstate.

In response to the concerns of the communities noted above, all vehicular bridges will be reconstructed to accommodate bicyclists and pedestrians (including wheelchairs), where appropriate. With the exception of the bridges specifically designed for U-turns by vehicles, which are not designed for pedestrian use, links across the freeway would be improved. Walk/wait signals will be provided where warranted. Sidewalks will be reconstructed within project limits where existing sidewalks are affected. New sidewalks will be added within project limits as indicated in Table 4-2.

It is noted that MDOT requires that all bridges over I-75 where pedestrians are present have screening so that objects cannot reach the pavement below. Also, all new facilities will be designed to conform to the Americans with Disabilities Act.

At an I-75 Council Meeting on June 5, 2002, it was noted that travel through the I-696 interchange area was difficult for pedestrians. There is a continuous sidewalk today on the west side of I-75 that follows the service drive through the interchange. On the east side of I-75, there is no such continuous sidewalk. This project would include addition of such a sidewalk on the east side.

At 12 Mile Road the SPUI design allows control of vehicle speed at the ramp ends, through traffic control devices (signals or signs) and/or the radius of the curve to 12 Mile Road (see Figure 3-12a). If the existing interchange were reconstructed in its same basic configuration (see Figure 3-12b), the problem of crossing loop ramps would remain. Vehicles merge from these loop ramps to 12 Mile Road without coming to a stop, making crossing more difficult. Nevertheless, under that option, sidewalks would be provided along both sides of 12 Mile Road. The SPUI is more desirable from the standpoint of pedestrian and bicycle movement, because of the greater control that can be exercised over vehicular traffic.

At 14 Mile Road, the presence of loop ramps makes safe pedestrian and bicycle movements through the interchange difficult. This intersection is planned for reconstruction in the same basic configuration as currently exists. Therefore, the sidewalk along the south side of 14 Mile Road would be similar to the existing walk along the north side. Pedestrian access through this area will be a focus of detailed analysis during the design phase.

Table 4-2
Sidewalk and Shoulder Conditions – Existing and With Project

BRIDGE/UNDERPASS LOCATION	SIDEWALKS	SHOULDERS	HANDICAP ACCESS	PROJECT EFFECT
Pedestrian Overpass at East Bernhard	NA	NA	Yes [a]	New ADA pedestrian bridge
Meyers Avenue Bridge	N & S	No	Yes	New bridge - w/sidewalks
Pedestrian Overpass at Harry Avenue	NA	NA	Yes [a]	New ADA pedestrian bridge or remove pedestrian bridge
Pedestrian Overpass at Highland Avenue	NA	NA	Yes [a]	New ADA pedestrian bridge
One-Way Cross-Over for SB to NB Service Drive	No	No	No	New bridge - vehicles only
John R. Bridge	E & W	No	Yes	New bridge - w/sidewalks
One-Way Cross-Over for NB to SB Service Drive	No	No	No	New bridge - vehicles only
One-Way Cross-Over for SB to NB Service Drive	No	No	No	New bridge - vehicles only
9 Mile Road Bridge	N & S	No	Yes	New bridge - w/sidewalks
Pedestrian Overpass at Orchard Street	NA	NA	Yes [a]	New ADA pedestrian bridge
Woodward Heights Boulevard Bridge	N & S	No	Yes	New bridge - w/sidewalks
Pedestrian Overpass at West Browning	NA	NA	Yes [a]	New ADA pedestrian bridge
Two-Way Cross-Over at W. Shelvin	No	No	No	New bridge - vehicles only
Sidewalks along Service Drives through I-696 Interchange	West side only	No	West side only	New sidewalk on east side to match west.
Two-Way Cross-Over at Dallas Avenue	No	No	No	New bridge - vehicles only - shifted north, NB to SB only
Lincoln Avenue (10 ½ Mile Road) Bridge	N & S	No	No	New bridge - w/sidewalks
11 Mile Road Bridge	N & S	No	No	New bridge - w/sidewalks
Gardenia Avenue Bridge	N & S	No	No	New bridge - w/sidewalks
NB Stevenson Bridge	No	W	No	New Bridge - vehicles only
Pedestrian Overpass at Bellaire Avenue	NA	NA	Yes [a]	New ADA pedestrian bridge
12 Mile under I-75	N	No	No	Both SPUI and rebuild options would have sidewalks both N & S. SPUI preferred for safety and convenience
13 Mile under I-75	N & S	No	Yes	Sidewalks will remain
14 Mile under I-75	N	Yes	Yes	Interchange reconstruct continues loop ramps. Sidewalks both N & S
15 Mile (Maple Road) under I-75	N & S	No	Yes	Sidewalks will remain
Rochester Road under I-75	E & W	No	Yes	Sidewalks will remain
Livernois Road under I-75	E & W	No	Yes	Sidewalks will remain
Big Beaver under I-75	N & S	No	Yes	Sidewalks will remain
Wattles Rd Pedestrian over I-75	S	No	Yes	Combine w/new vehicular bridge
Wattles Road (17 Mile) over I-75	Yes	No	Yes	New bridge - w/sidewalk
Coolidge Road under I-75	Yes	No	Yes	New bridge - w/sidewalk
Square Lake Road under I-75	N	No	Yes	Sidewalk will remain
Adams Road under I-75	N	No	No	No sidewalks planned
Squirrel Road over I-75	No	No	No	New bridge - w/shoulders
South Boulevard over I-75	Yes	Yes	Yes	Existing bridge remains

Source: The Corradino Group of Michigan, Inc. and Schutt & Company
[a] Ramps are present, but do not meet Americans with Disabilities Act requirements.
Note: N/A means Not Applicable, N = North, S = South, E = East, and W = West.

4.2.3 Considerations Relating to Mass Transit Service and Carpooling

The Suburban Mobility Authority for Regional Transportation (SMART) provides fixed-route bus services in Oakland County, including the I-75 corridor (Figure 4-1). Fixed-route service close to I-75 is provided on John R Road, Stephenson Highway, and Big Beaver Road. Routes cross I-75 at 8 Mile Road, 9 Mile Road, 11 Mile Road, 12 Mile Road, 14 Mile Road, Maple Road, Livernois Road, Big Beaver Road, and Coolidge Highway. A park-and-ride lot served by transit is located in the Oakland Mall. Dial-a-ride service is provided in Troy.

As discussed in Section 3.6, computer modeling for this DEIS found rapid transit to be viable in the Woodward Corridor at least as far north as 9 Mile Road, but it cannot meet the purpose and need of this project. There are no current plans for significant expansion of transit services in Oakland County. In fall of 2002, county residents approved a referendum to continue service. Planning continues for improved transit along the Woodward Corridor in the City of Detroit. The *Woodward Corridor Transit Alternatives Study*[5] confirmed that bus rapid transit or light rail transit are the preferred technologies. In May 2003, the Regional Transportation Coordinating Council with representatives from Macomb, Oakland, and Wayne counties and the City of Detroit, signed an interlocal agreement to form the Detroit Area Regional Transportation Authority (DARTA). This group is expected to pursue rapid transit development in the Woodward Corridor at some future point in time.

MDOT maintains four carpool lots along I-75 in Oakland County (Table 4-3). New lots at Sashabaw Road and Grange Hall Road will be established along I-75 in 2003. The lot at Dixie Highway will be expanded. Data for all four lots dates to 1984, when the population of the north corridor (where three of the lots are located) was substantially lower. Lot usage is principally related to the condition of the economy and gasoline prices.

Table 4-3
Average Daily MDOT Carpool Lot Use

LOT LOCATION	EXIT #	CAPACITY	1984	1996	1997	1998	1999	2000	2001	2002
Auburn Hills – Baldwin Road	Exit 84 SW Quadrant	44	18	6	18	44	29	29	29	25
Clarkston NE – Sashabaw Road	Exit 89 NE Quadrant	100	30	32	45	68	83	60	63	58
Clarkston N – M-15	Exit 91 SW Quadrant	32	25	12	17	15	15	10	6	11
Clarkston NW – Dixie Highway	Exit 93 NE Quadrant	41	30	22	17	23	29	46[a]	33	21
Totals		217	103	72	97	150	156	145	131	115

Source: MDOT
[a] The capacity of this lot is often exceeded. Cars park on the grass adjacent to the lot.

Transit and carpooling will be important components of maintaining traffic during construction (see next section).

[5] *Woodward Corridor Transit Alternatives Study*, IBI Group, May 2000.

4.2.4 Maintaining Local and Regional Access During Construction

During the construction of the proposed improvements both local and regional access would be maintained. A minimum of two lanes of traffic in each direction would be maintained on I-75 at all times. Staged construction would be employed. For most of the corridor, part-width construction techniques would be used. This means maintaining traffic on a portion of the road, while the other portion is being reconstructed. Part-width construction is applicable when a road is being widened, such as with this project. But, as total reconstruction of I-75 is planned to coincide with the lane additions, the entire road width would be closed at one time or another. In the depressed section, bridges would be replaced. This means there would be brief periods when one side of the freeway would have to be totally closed as bridge beams are removed and new ones put in place.

The service drives on either side of the depressed section are available for traffic diversion and would be used. Due to the short blocks that prevail in this section of the corridor, access can be maintained to local properties.

It is anticipated that, based on available funding and cooperation, special transit services could be initiated in advance of the construction period. Existing MDOT and SEMCOG rideshare programs would be enhanced, with particular emphasis of major corridor employers.

4.2.5 Population and Employment Trends

There has been extensive growth in Oakland County in population and employment, and a shift in population and employment north from Detroit and the suburbs in southern Oakland County (Table 4-4). Between 1980 and 1990 Oakland County's population increased seven percent from 1,012,000 to 1,084,000. By 2000 it had increased nearly 10 percent more to 1,194,000. It is expected to grow an additional 12 percent to 1,330,000 over the next 30 years. Because household size is shrinking, the rate of household growth is even greater than population growth. The growth in households supports the maintenance of the tax base (see next section). For communities contiguous to the project, Auburn Hills is greatest in recent population growth (in terms of percentage), followed by Troy. Other communities lost population. All are projected to lose population by 2030 except Auburn Hills. If the balance of townships within Oakland County along I-75 is included, the population growth in the last decade was five percent. This total is expected to grow another two percent by 2030.

Employment in Oakland County has increased by 34 percent from 681,000 to 910,000 over the last decade (Table 4-5). It is expected to increase by an additional 19 percent to almost 1,100,000 over the next 30 years.[6] Oakland County now leads the state in jobs. In 2020 Oakland County is expected to have nearly 19 percent of the state of Michigan's total employment and more than 29 percent of its total earnings.[7]

[6] *2030 Regional Development Forecast for Southeast Michigan*, Southeast Michigan Council of Governments (SEMCOG), 2001.
[7] *1999 State Profile; Michigan*, Woods and Poole Economics, Inc.

Table 4-4
Population and Household Growth

	Population							Households				
	Totals				Percent Change			Totals			Percent Change	
Place	1980	1990	2000	2030 est.	80 to 90	90 to 00	00 to 30	1990	2000	2030 est.	90 to 00	00 to 30
Hazel Park	20,914	20,051	18,963	15,860	-4.1%	-5.4%	-16.4%	7,284	7,284	7,179	0.0%	-1.4%
Ferndale	26,227	25,084	22,105	17,880	-4.4%	-11.9%	-19.1%	9,845	9,871	9,899	0.3%	0.3%
Madison Heights	35,375	32,196	31,101	26,564	-9.0%	-3.4%	-14.6%	12,850	13,299	13,538	3.5%	1.8%
Royal Oak	70,893	65,410	60,062	52,233	-7.7%	-8.2%	-13.0%	28,344	28,880	29,168	1.9%	1.0%
Troy	67,102	72,884	80,959	77,046	8.6%	11.1%	-4.8%	26,167	30,018	32,621	14.7%	8.7%
Bloomfield Township	42,876	42,473	43,023	39,180	-0.9%	1.3%	-8.9%	15,734	16,804	17,409	6.8%	3.6%
Pontiac Twp./ Auburn Hills [a]	15,388	17,076	19,837	21,013	11.0%	16.2%	5.9%	6,453	8,064	9,753	25.0%	20.9%
Contiguous Communities Subtotal	280,755	277,164	278,050	249,776	-1.3%	0.3%	-10.2%	108,667	116,220	119,567	7.0%	2.9%
Pontiac	76,715	71,136	66,337	75,544	-7.3%	-6.7%	13.9%	24,763	24,234	30,204	-2.1%	24.6%
Orion Township	19,566	21,019	30,748	40,948	7.4%	46.3%	33.2%	7,331	11,048	16,030	50.7%	45.1%
Independence Township	20,569	23,717	32,581	38,103	15.3%	37.4%	16.9%	7,977	11,765	15,381	47.5%	30.7%
Springfield Twp.	8,295	9,927	13,338	20,326	19.7%	34.4%	52.4%	3,276	4,619	7,854	41.0%	70.0%
Holly Township	3,612	3,257	3,902	7,167	-9.8%	19.8%	83.7%	1,095	1,321	2,890	20.6%	118.8%
Groveland Twp.	4,114	4,705	6,150	7,239	14.4%	30.7%	17.7%	1,534	2,106	2,819	37.3%	33.9%
Corridor Total	413,626	410,925	431,106	439,103	-0.7%	4.9%	1.9%	154,643	171,313	194,745	10.8%	13.7%
Oakland County	1,011,793	1,083,592	1,194,156	1,333,573	7.1%	10.2%	11.7%	410,488	471,115	581,838	14.8%	23.5%
Michigan	9,262,044	9,295,287	9,938,444	NA	0.4%	6.9%	NA	3,419,331	3,785,661	NA	10.7%	NA

Source: *Historical Population and Employment by Minor Civil division, Southeast Michigan,* SEMCOG, June 2002
[a] Auburn Hills was incorporated in 1983 from Pontiac Township.

Table 4-5
Socioeconomic Characteristics

	Employment											
	Totals			Percent Change		2000 Socioeconomic Characteristics						
Place	1990	2000	2030 est.	90 to 00	00 to 30	Median House-hold Income[a]	Median House Value	Percent Renters	Percent Minority	% House-holds in Poverty	% Older Than 65
Hazel Park	5,003	4,883	4,099	-2.4%	-16.1%	$ 37,045	$77,000	25%	8%	12%	11%
Ferndale	10,577	11,312	11,173	6.9%	-1.2%	$45,629	$102,900	28%	9%	8%	10%
Madison Heights	27,408	28,848	27,538	5.3%	-4.5%	$42,326	$110,600	29%	10%	8%	14%
Royal Oak	34,871	42,252	43,583	21.2%	3.2%	$52,252	$150,900	29%	5%	5%	15%
Troy	104,498	135,977	144,882	30.1%	6.5%	$77,538	$219,800	22%	18%	3%	10%
Bloomfield Township	15,013	24,943	33,161	66.1%	32.9%	$103,897	$356,800	9%	12%	3%	18%
Auburn Hills	22,202	54,253	77,684	144.4%	43.2%	$51,376	$137,200	45%	24%	7%	15%
Contiguous Communities Subtotal	219,572	302,468	342,120	37.8%	13.1%	NA	NA	NA	NA	NA	NA
Pontiac	56,308	63,070	76,787	12.0%	21.7%	$31,207	$74,300	43%	60%	21%	9%
Orion Township	7,379	9,057	17,232	22.7%	90.3%	$73,755	$199,100	15%	5%	3%	5%
Independence Township	4,445	7,725	10,990	73.8%	42.3%	$74,993	$203,600	16%	4%	2%	8%
Springfield Township	1,244	2,685	6,805	115.8%	153.4%	$71,977	$209,100	8%	3%	4%	6%
Holly Township	326	815	1,789	150.0%	119.5%	$67,813	$158,400	9%	7%	5%	11%
Groveland Township	417	926	2,143	122.1%	131.4%	$72,188	$197,300	5%	3%	5%	5%
Corridor Total	509,263	689,214	799,986	35.3%	16.1%	NA	NA	NA	NA	NA	NA
Oakland County	681,037	910,363	1,087,399	33.7%	19.4%	$61,907	$181,200	24%	17%	5%	11%
Michigan	4,826,388	5,654,522	NA	17.2%	NA	$44,667	$115,600	26%	18%	12%	12%

Source: *Historical Population and Employment by Minor Civil division, Southeast Michigan*, SEMCOG, June 2002
[a] 1999 data, most recent available.

4.2.6 Other Socioeconomic Characteristics

An examination of communities adjacent to I-75 finds the northern townships have higher income levels and median home values than those to the south (Table 4-5). The percentages of minorities vary from less than ten percent in Hazel Park, Ferndale and Royal Oak, to the teens in Madison Heights, Troy and Bloomfield Township, to 24 percent in Auburn Hills. The townships to the north of Pontiac have minority percentages of seven percent or less.

For contiguous communities the percentage of households in poverty is eight percent or less except for Hazel Park. Hazel Park has the lowest median household income, the lowest median house value, and the highest percentage of households in poverty. All the communities contiguous to the project have elderly populations in the double digits, compared to the townships further north, which are all under ten percent, except Holly Township. This reflects the fact that Hazel Park, Ferndale, Royal Oak, and Madison Heights are older communities with populations who arrived early in the development of Oakland County and have, in many cases, remained.

4.3 Environmental Justice

Several socioeconomic characteristics are of particular interest as they relate to environmental justice. Executive Order 12898 is being implemented to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The proposed improvements will not cause disproportionately high and adverse human health or environmental effects on minority populations or low-income populations, as the impacts of the project are few. Impacts will largely be positive as access to jobs will be improved.

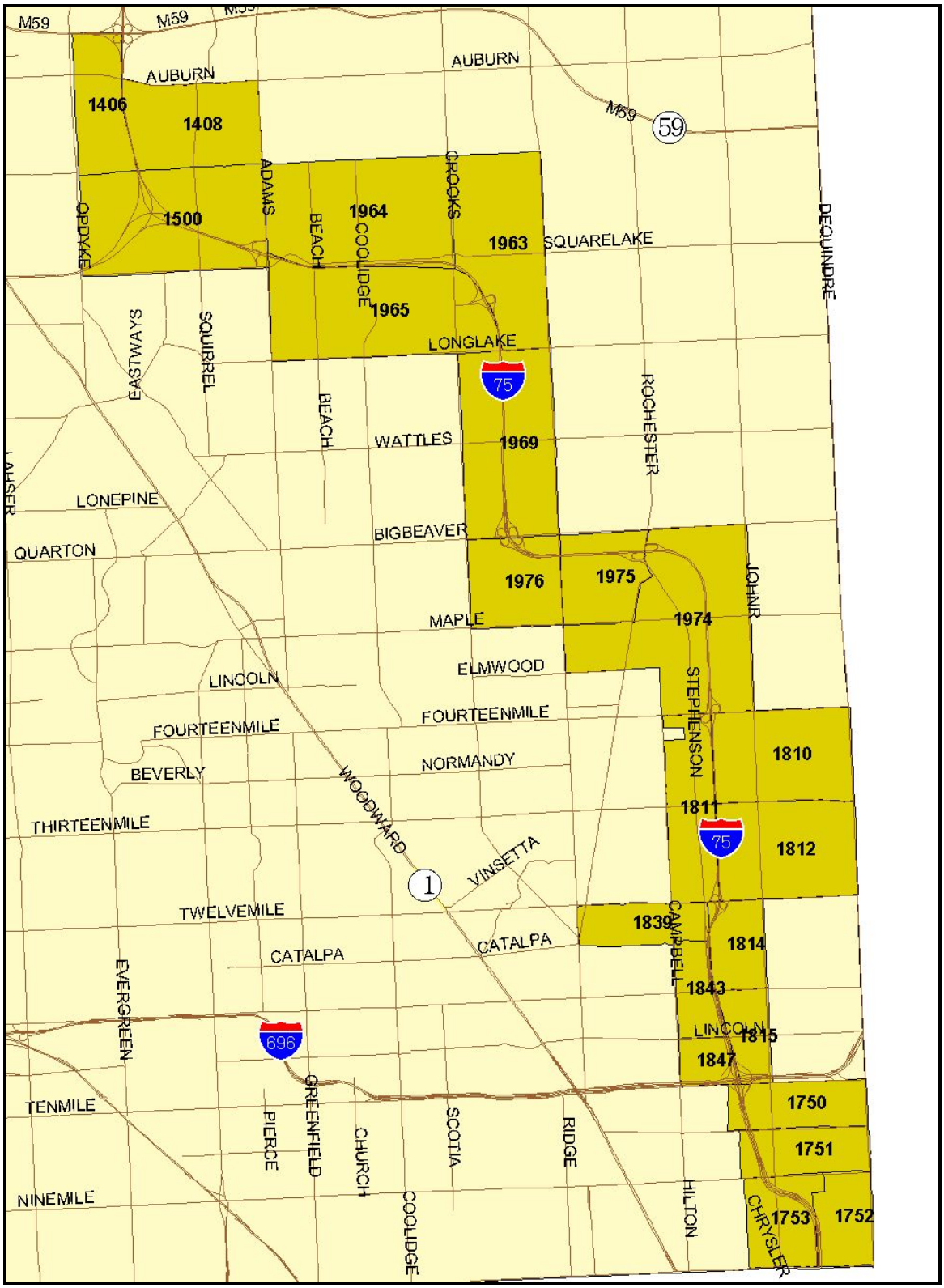
The characteristics of the census tracts immediately adjacent to the corridor (Table 4-6 and Figure 4-2) were examined with respect to minorities and low income. The census tracts with the highest proportion of minorities are 1406 and 1810, each with minority populations of 35 percent.

In tract 1810 the minority population is led by Asian/Pacific Islanders (20 percent) and African Americans (9 percent). American Indian/Eskimo and "other" are both 1 percent, and Multiple Race is 5 percent. The Hispanic population is 2 percent of the total population of tract 1810. "Hispanic Population" is a separate category, because Hispanic individuals can consider themselves any of a number of races.

In tract 1406 the minority population consists of African American (27 percent), Asian/Pacific Islander (5 percent), other (1 percent), and Multiple Race (2 percent). The Hispanic population is 2 percent of the tract total.

The census tract with the highest percentage of low-income persons is tract 1810 with 19.3 percent. In Madison Heights the figure is 8.8 percent. In Oakland County it is 5.5 percent, and statewide the figure is 10.5 percent.

All those who live near I-75 will benefit from noise abatement (Section 4.8.5), including low-income and minority persons. No concentrations of low-income or minority persons are known. But efforts will continue to identify such groups through the study process. Any such groups will benefit from the improvements in access resulting from the project. As noted in Section 1, I-75 serves as a route to employment. Oakland County now leads the state in terms of providing jobs.



Source: U.S. Census

Figure 4-2
Census Tracts Along I-75

Table 4-6
Minority and Low-Income Populations in Contiguous Census Tracts

Community	2000 Census Tract	% Low-Income Persons (1999 data)	Percent Minority (2000 data)	Percent Hispanic (2000 data)	Top Three Non-White Races (2000 data)[a]
Hazel Park	1750	11.1%	6%	3%	MR/B/A
	1751	11.5%	9%	2%	MR/B/A
	1752	11.8%	10%	2%	MR/A/B
	1753	14.3%	9%	2%	MR/A/B
	All tracts	12.3%	8%	2%	MR/A/B
Royal Oak	1839	2.6%	4%	2%	B/MR/A
	1843	3.3%	5%	1%	MR/A/B
	1847	5.8%	3%	2%	MR/A/B
	All tracts	4.2%	5%	1%	A/B/MR
Madison Heights	1810	19.3%	35%	2%	A/B/MR
	1811	4.8%	3%	1%	A/MR/B
	1812	5.6%	9%	1%	A/MR/B
	1814	6.7%	8%	3%	A/MR/B
	1815	8.4%	6%	2%	A/MR/B
	All tracts	8.8%	10%	2%	A/MR/B
Troy	1963	1.8%	16%	1%	A/B/MR
	1964	0.8%	16%	1%	A/B/MR
	1965	0.9%	22%	1%	A/B/MR
	1969	2.3%	23%	1%	A/MR/B
	1974	6.1%	7%	2%	MR/A/B
	1975	6.1%	34%	2%	A/B/MR
	1976	2.6%	24%	4%	A/B/MR
	All tracts	2.7%	18%	1%	A/B/MR
Bloomfield Twp	1500	2.7%	20%	2%	A/B/MR
	All tracts	2.5%	12%	1%	A/B/MR
Auburn Hills	1406	3.0%	35%	2%	B/A/MR
	1408	4.6%	27%	3%	A/B/MR
	All tracts	5.8%	24%	4%	B/A/MR
Oakland County	All tracts	5.5%	20%	2%	B/MR/A
Michigan	All tracts	10.5%	20%	3%	B/MR/A

Source: 2000 U.S. Census
[a] A = Asian or Pacific Islander; B = Black or African American; MR = Multiple Race.

Most of the project impacts are the relocations that would occur in tract 1815 in Madison Heights, where eight homes will likely be relocated with the ramp braiding. Tract 1815's boundaries are Stephenson Highway on the west, John R on the east, 10 Mile Road on the south, and 11 Mile Road on the north. Its percent of minorities is 6 percent, lower than the 10 percent for Madison Heights, 20 percent for Oakland County, and 20 percent for the state of Michigan. Its percent of persons in poverty (8.4) is lower than that of Madison Heights as a whole (8.8), and the state of Michigan's (10.5), but higher than Oakland County's (5.5). These data indicate no disproportionate impacts to minority or low-income populations.

A public involvement program was established to solicit input from potentially affected property owners, including minority and low-income populations, as well as other interested parties. The meetings, which included five I-75 Council meetings and three rounds of public meetings held prior to the public hearing (Section 6.2), were held at various times and locations within the project corridor. During these meetings, the public had an opportunity to view and comment on the various alternatives, regarding their development.

No disproportionately high and adverse impacts to minority populations and low-income populations are considered to be associated with the proposed project at this time. A continuing effort will be made to identify such populations during subsequent phases of this project. If any impacts are identified, every effort will be made to actively involve these populations in the project development process, and to avoid or mitigate these impacts.

4.4 Economic Impacts and Tax Base Loss

4.4.1 Economic Background

Economic activity in the project area is generated by a variety of market sectors including retail trade, services, education, and public administration. The I-75 corridor throughout Oakland County has been subject to rapid development. This trend is expected to continue, but at a reduced pace in the south part of the corridor.

During the 1990s, Oakland County employment grew about 50 percent faster than the nation as a whole, while per capita income grew 34 percent faster. Private sector job growth was 33 percent, creating an average of 21,900 new jobs annually. Oakland County is the number one job producing county in Michigan, responsible for 25 percent of all new Michigan jobs in the last decade. Oakland County is also Michigan's leading center for international commercial activity. In a strong rebound from the recession of the early 1990s, Oakland gained 30,400 jobs in 1994 and continued to add between 10,000 and 26,000 jobs for several years thereafter. This trend is due to growth in both manufacturing (33%) and non-manufacturing (also 33%) jobs over the ten-year period. From 1992 to 2000, the number of businesses rose about 30 percent to 42,000 with the total annual payroll increasing by 90 percent to $31.9 billion.

During the 1990s, employment shifted from trade industries to services, such as health, technology, and finance. Manufacturing has maintained its share of employment, which is unusual among Michigan's local economies and a departure from Oakland's trend in the 1980s. In fact, manufacturing employment declined in the nation as a whole during this period.

Oakland's March 2003 unemployment rate of 5.1 percent was lower than Michigan's 6.8 percent and the nation's 6.2 percent. Oakland County's per capita income is the highest in the state. This wealth manifests itself in the housing market. Housing demand has caused the sales volume of new construction and existing homes to increase by 17 percent between 1997 and 2000. And, the average price of single-family homes increased by 28 percent from $160,000 to $204,000.

Census data for 2000 show more commuters (17,700) now travel from Wayne County to Oakland County to work than the reverse (Table 4-7). And overall, 115,000 more workers commute into Oakland County than the reverse.

Predictions are for continued population/employment and traffic growth. But, adding capacity to I-75 is a response to the growth that has already occurred and anticipates the growth predicted by the local political jurisdictions in the corridor.

Table 4-7
Commuting to and from Oakland County

COUNTY OF RESIDENCE	COUNTY OF WORK	WORKERS	PERCENT
Oakland	Oakland	429,030	71.5%
Oakland	Wayne	106,405	17.7%
Oakland	Macomb	41,935	7.0%
Oakland	Washtenaw	6,723	1.1%
Oakland	Genesee	6,307	1.1%
Oakland	All Other Counties	9,783	1.6%
Total Workers Living in Oakland County		600,183	100.0%
Oakland	Oakland	429,030	60.0%
Wayne	Oakland	124,137	17.4%
Macomb	Oakland	94,376	13.2%
Genesee	Oakland	20,061	2.8%
Livingston	Oakland	17,064	2.4%
All Other Counties	Oakland	30,808	4.3%
Total Workers in Oakland County		715,476	100.0%

Source: US Census

The tax base in the corridor has increased steadily. In all cases, but one, the State Equalized Value in jurisdictions has risen considerably faster than the Consumer Price Index (Table 4-8). This is true for inner suburbs and outer suburbs, but the outer suburbs have experienced greater rates of growth in SEV, as they had a lower base to begin with. Interestingly, Pontiac in the 1990s kept pace with the outer suburbs.

Data from the Oakland County Equalization Division show interesting recent trends. Percent increases in taxable property value (State Equalized Value change from 2001 to 2002) for communities adjacent to the project are:

- Auburn Hills - 10.79 percent;
- Bloomfield Township - 4.77 percent;
- Ferndale - 12.19 percent;
- Hazel Park - 14.16 percent;
- Madison Heights - 3.53 percent;
- Pontiac - 3.68 percent;
- Royal Oak - 6.69 percent; and,
- Troy - 3.90 percent.

These compare favorably to changes further north in the more rapidly developing areas.

- Brandon Township - 4.01 percent;
- Groveland Township - 8.35 percent;
- Highland Township - 8.92 percent;
- Holly Township - 6.52 percent;
- Independence Township - 6.98 percent;
- Springfield Township - 8.51 percent;
- Waterford Township - 7.37 percent; and,
- County Average - 6.77 percent.

Table 4-8
Change in State Equalized Value
(millions of 2002 dollars adjusted from base year with Consumer Price Index)

TAX DISTRICT	1970	1980	1990	2000	SEV % CHANGE		
	SEV	SEV	SEV	SEV	70>80	80>90	90>00
Hazel Park	17	56	115	272	331%	206%	236%
Ferndale	29	82	194	537	281%	238%	277%
Royal Oak	73	279	770	1961	382%	276%	255%
Madison Heights	38	158	507	1077	421%	321%	212%
Troy	67	534	2098	4931	798%	393%	235%
Bloomfield Township	140	394	1307	3057	281%	332%	234%
Auburn Hills (Pontiac Twp.)	20	54	264	1677	265%	492%	635%
Subtotal	383	1556	5256	13512	406%	338%	257%
Southfield	126	547	1556	3263	436%	285%	210%
Bloomfield Hills	11	71	307	760	648%	431%	247%
Pontiac	113	294	431	1141	261%	147%	265%
Rochester Hills (Avon Twp.)	55	236	1111	2804	429%	471%	252%
Subtotal	304	1148	3404	7967	377%	297%	234%
Orion Township	28	93	324	1394	331%	348%	430%
Independence Township	27	102	352	1210	379%	347%	344%
Springfield Township	8	39	125	477	466%	320%	383%
Holly Township	11	30	76	247	282%	250%	325%
Groveland Township	5	23	60	201	460%	258%	335%
Subtotal	79	287	937	3529	363%	326%	377%
Oakland County	1042	5530	18439	49549	531%	333%	269%
Consumer Price Index	39.5	85.3	128.6	169.8	216%	151%	132%

Source: Oakland County Tax Equalization Office

4.4.2 Tax Base Loss

The right-of-way cost estimate indicates that property acquisition will result in a reduction in real property tax revenues for several communities as shown in Table 4-9. These numbers are small in consideration of recent percentage increases in SEV in these communities (Table 4-9). The effect will be greatest on Hazel Park, which would realize a likely tax loss of over $60,000. The increase in SEV of remaining properties over the coming years will outweigh potential losses.

Table 4-9
Tax Base Loss (2003 dollars)

Taxing Entity	ROW Cost[a]	Value[b]	Tax Loss[c]	% of Total Taxes[d]
Hazel Park	$2,065,000	$1,032,500	$61,065	0.0225%
Royal Oak	$2,000	$1,000	$49	0.0000%
Madison Heights	$2,360,000	$1,180,000	$55,120	0.0051%
Troy	$350,000	$175,000	$8,260	0.0002%
Total	$4,777,000	$2,388,000	$124,000	NA

Source: Tax Equalization Offices
[a] Fair market value of the land and structures required for right-of-way.
[b] This is 50% of the estimated "fair market value."
[c] Value times tax rate, then rounded.
[d] Tax loss divided by total State Equivalent Value for the community.

4.5 Land Use and Planning Consistency

Land use along I-75 in the project length, is predominately: small lot single-family residential in the south (Hazel Park, Ferndale, Royal Oak, and south Madison Heights), with commercial development where arterial streets intersect; commercial and some light industrial in Madison Heights from 12 Mile Road north; office and commercial with apartment and condominium development in mid-Troy; a mix of single- and multi-family in north Troy; and, single-family in Bloomfield Township and Auburn Hills (Figure 4-3).

Planning documents for each of the communities contiguous to the project were reviewed for references to I-75. They indicate:

- **Auburn Hills** -- *Master Plan* adopted on November 7, 2002. No mention of I-75.
- **Ferndale** -- *Master Plan* adopted in June of 1998. No mention of I-75.
- **Hazel Park** -- *Master Plan* adopted on March 21, 2000. I-75 mentioned in relation to access to the Hazel Park racetrack, and as a major north/south thoroughfare in relation to collector streets. Noise – "The primary noise pollutant in Hazel Park is I-75 which traverses the City from its southern boundary at 8 Mile Road east of John R. Road to the north boundary at Ten Mile Road west of John R. Road. The areas where noise could be a problem are the residential neighborhood along the I-75 corridor, particularly, in the northwest area of Hazel Park where I-75 interchanges with I-696. Noise abatement is provided by the series of walls erected along I-75 and I-696". The downtown Hazel Park area (9 Mile Road and John R. Road) needs "…redevelopment of the service drive and a new bridge across I-75." Improved pedestrian access across the I-75 overpass (9 Mile Road) is needed.
- **Madison Heights** -- *Master Plan* adopted on October 16, 1990. "The development of the I-75 corridor (north of Square Lake Road) will provide opportunities for employment for Madison Heights residents as well as the potential for business exchange between existing industrial and office uses in Madison Heights and businesses in the Oakland Technology Park. The I-75 road improvements have also provided for improved travel time to the north." And, "According to the planning methodology for multi-lane highways in the Highway Capacity Manual, by the Transportation Research Board, I-75 should have eight-lanes divided in order to properly support 105,000 vehicles per day, not the six-lanes divided currently in place."
- **Royal Oak** -- *Master Plan* adopted in August of 1999. No mention of I-75.
- **Troy** -- *Future Land Use Plan* adopted on January 8, 2002. No mention of I-75.
- **Bloomfield Township** -- *Master Plan* adopted in 1991. No mention of I-75.

It is noted that new bridges are planned with the proposed build alternatives at 9 Mile Road and John R. Road that will improve pedestrian access.

4.6 Farmland/Michigan Act 451, Part 361 Lands/Forest Land

There is no agricultural or forestry zoning or land use in any of the jurisdictions adjacent to the proposed project. No Part 361 (The Farmland and Open Space Preservation Act) of Michigan Public Act 451, parcels are adjacent to I-75 in the project area.[8] No additional review under the Federal Farmland Protection Policy Act is required. Therefore, an A.D. 1006 form was not prepared for coordination with the USDA/NRCS. In a letter dated September 18, 2002 the

[8] Based on a search of the Act 451, Part 361 database for Oakland County.

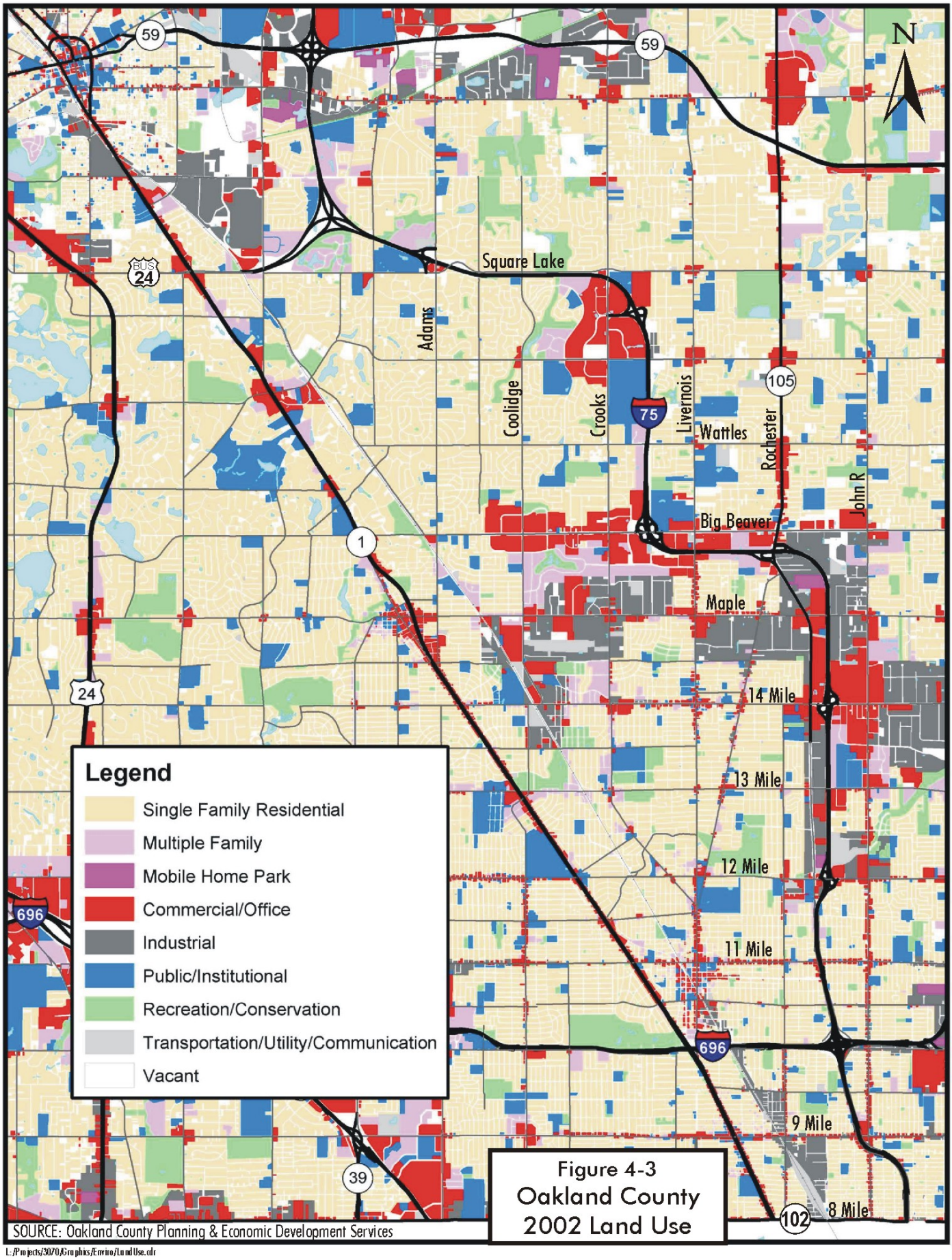


Figure 4-3
Oakland County
2002 Land Use

Michigan Department of Agriculture notes that " . . . since the widening of I-75 is to be accomplished largely within the existing right-of-way in a highly developed traffic corridor, little or no adverse impacts to agriculture are anticipated" (Appendix B).

4.7 Air Quality Analysis

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following pollutants that are considered to be harmful to public health and the environment: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter, and sulfur dioxide (SO_2). The NAAQS, which include primary or health-related standards and secondary or welfare-related standards, define the maximum permissible concentrations of these pollutants (Table 4-10). For this project pollutants of principal concern are ozone and carbon monoxide.

Table 4-10
National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
Carbon Monoxide (CO)			
8-hour Average	9 ppm	(10 mg/m^3)[a]	Primary[b]
1-hour Average	35 ppm	(40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)			
Annual Arithmetic Mean	0.053 ppm	(100 $\mu g/m^3$)	Primary & Secondary[c]
Ozone (O_3)			
1-hour Average	0.12 ppm	(235 $\mu g/m^3$)	Primary & Secondary
8-hour Average	0.08 ppm	(157 $\mu g/m^3$)	Primary & Secondary
Lead (Pb)			
Quarterly Average	1.5 $\mu g/m^3$		Primary & Secondary
Particulate (PM 10) *Particles with diameters of 10 micrometers or less*			
Annual Arithmetic Mean	50 $\mu g/m^3$		Primary & Secondary
24-hour Average	150 $\mu g/m^3$		Primary & Secondary
Particulate (PM 2.5) *Particles with diameters of 2.5 micrometers or less*			
Annual Arithmetic Mean	15 $\mu g/m^3$		Primary & Secondary
24-hour Average	65 $\mu g/m^3$		Primary & Secondary
Sulfur Dioxide (SO_2)			
Annual Arithmetic Mean	0.030 ppm	(80 $\mu g/m^3$)	Primary
24-hour Average	0.14 ppm	(365 $\mu g/m^3$)	Primary
3-hour Average	0.50 ppm	(1300 $\mu g/m^3$)	Secondary

Source: US EPA
[a] Parenthetical values are approximate equivalent concentrations.
[b] Primary NAAQS: the levels of air quality that the EPA judges necessary, with an adequate margin of safety, to protect the public health.
[c] Secondary NAAQS: the levels of air quality that the EPA judges necessary to protect the public welfare from any known or anticipated adverse effects.

Effective April 6, 1995, the seven-county[9] Southeast Michigan area (including Oakland County) was redesignated by EPA to attainment and associated section 175A maintenance of the 1-hour National Ambient Air Quality Standard (NAAQS) for ozone. EPA also approved the state's plan for maintaining the 1-hour ozone standard for the next ten years as a revision to the Michigan State Implementation Plan (SIP). So, the seven-county area is now an "attainment/maintenance" area for ozone. However, a new EPA 8-hour standard, that was held in abeyance for some time due to litigation, is now being implemented. Oakland County, along with other southeast Michigan counties, is expected to become a non-attainment area under the new standard. Based on EPA's plan for implementation of the 8-hour standard, it is likely the need to test projects for conformity under the new standard will apply during 2005. Conformity under the 1-hour standard will continue until the 8-hour standard is applied.

Effective June 30, 1999 portions of Wayne, Oakland, and Macomb counties were redesignated by EPA to attainment and associated 175A maintenance of the NAAQS for carbon monoxide (CO). The section of the I-75 project south of 14 Mile Road is in this attainment/maintenance area for CO. Therefore, the project must also be included in the three-county conformity determination for CO.

The current NAAQS for particulates include PM_{10} (particles with diameters of 10 micrometers or less) and $PM_{2.5}$ (particles with diameters of 2.5 micrometers or less). The status of the Detroit area under the $PM_{2.5}$ standard (attainment or non-attainment) will likely be determined in autumn 2004 with conformity required one year later.

Because the project is located in an area designated as maintenance for both carbon monoxide and ozone, emissions levels for CO and the ozone precursors, volatile organic compounds (VOCs) and nitrogen oxides (NOx) must remain below established regional budgets. Ozone is a regional pollutant and evaluation of impacts on a project-level basis is not meaningful.

Based on the above discussion, and in accordance with MDOT, FHWA, and EPA procedures, the air quality impact analysis for this project consists of:

1. A regional (macroscale) conformity analysis to be performed on the Preferred Alternative by SEMCOG prior to the approval of the Final EIS, if a build alternative is identified after the public hearing and is then added to SEMCOG's Transportation Improvement Program. The conformity analysis for ozone would be on a seven-county basis. The conformity analysis for CO would be on a three-county basis.
2. The microscale analysis of CO concentrations summarized below.[10]

For CO, the criterion for adverse impact is an exceedance of the NAAQS at a sensitive receptor modeled for the year of opening (2015) and design year (2025). The assumptions with respect to ambient (background) levels of CO were 4.5 parts per million (ppm) and 3.0 ppm, for one hour and eights hours, respectively. These values were obtained from the nearest CO monitoring station at Oak Park.

[9] Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties.
[10] *Air Quality Technical Report* The Corradino Group, October 2003.

The difference between the GP and HOV alternatives on CO concentrations is negligible. A computer program, CAL3QHC, was used to estimate CO concentrations at over fifty sensitive receptors at eleven locations along the corridor. Sensitive receptors are outside locations where persons would normally be present for some time. Receptors were identified along I-75 and its service drives and at intersections near residential areas.

The worst-case one-hour CO concentration in 2015 was found to be near Gardenia Avenue (Table 4-11). The predicted concentration was 9.2 parts per million (ppm), well below the NAAQS of 35 ppm. Converting this to an eight-hour value using a persistency factor of 0.67 results in an eight-hour forecast of 6.1 compared to the standard of 9 ppm. Worst-case one- and eight-hour concentrations in 2025 are estimated to be 9.3 and 6.2 ppm, respectively, also well below standards.

This project is expected to have a positive impact on air quality by reducing congestion. Stop-and-go traffic is evident along I-75 on a daily basis. Without the proposed project the frequency and duration of these occurrences will increase. Air pollution emissions increase substantially when vehicles are idling and/or changing speeds. The proposed lane addition will smooth traffic flow and allow a greater opportunity to bypass incidents that cause traffic delay. The result will be reduced tailpipe emissions.

Air toxics and $PM_{2.5}$ are of growing concern. Both are acknowledged to pose health risks. Air toxics include a variety of organic (carbon-based) compounds, metals, and other materials that have a negative effect on health and/or human welfare. They are emitted by vehicles, particularly diesel trucks. Data from the 1996 National Toxics Inventory indicate that mobile sources (cars, trucks, and other "non-point" sources) account for approximately 50 percent of air toxics emissions (EPA, 2000).

There is no method approved by EPA to calculate air toxics produced by vehicles. No national standards have been set for air toxics by EPA, but data are being collected and measures are underway to reduce them. EPA has issued a suite of motor vehicle and fuels regulations, including tailpipe emission standards for cars, SUVs, mini-vans, pickup trucks and heavy trucks and buses; standards for cleaner-burning gasoline; a national low-emission vehicle program; and, standards for low-sulfur gasoline and diesel fuel. By the year 2020, these requirements are expected to reduce emissions of a number of air toxics (benzene, formaldehyde, acetaldehyde and 1,3-butadiene) from highway motor vehicles by about 75 percent and diesel particulate matter by over 90 percent from 1990 levels (EPA, 2000).

$PM_{2.5}$ represents the smallest of particles. Once inhaled, they can penetrate deep into the lungs. Standards have been set for $PM_{2.5}$ and increasingly stringent standards are being applied to diesel vehicles. By 2007, 90 percent of the sulfur in diesel fuel is to be eliminated. This will substantially reduce diesel emissions and $PM_{2.5}$.

There are a number of uncertainties related to air toxics and $PM_{2.5}$. While there are health effects, they are difficult to quantify, and relationships between various pollutants are poorly understood. Data are being collected and computer models are currently being developed and tested to estimate concentrations of these pollutants, but to date there are limitations from a scientific basis. Some pollutants are reactive, others are not. Reactivity affects the way pollutants disperse. Background levels are difficult to determine and pollutant data collected thus far appear to contain anomalies. For these reasons quantitative analysis is not yet reliable.

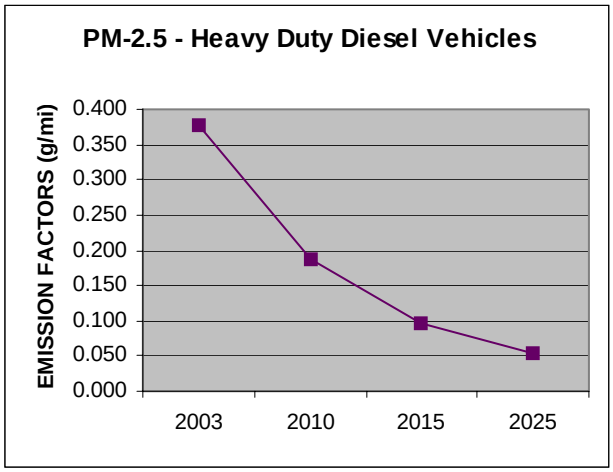
Table 4-11
CO Concentrations

Modeling Site	Location	Receptor	Existing (2003)		Build (2015)		No Build (2015)		Build (2025)		No Build (2025)	
			1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
1	South of 9 Mile Rd at Highland Ave	1	10.5	7.0	8.1	5.4	7.8	5.2	8.1	5.4	7.6	5.1
		2	8.7	5.8	7.2	4.8	7.0	4.7	7.2	4.8	6.9	4.6
2	South of 1-75/696 Interchange at Mapledale Ave	1	9.4	6.3	7.6	5.1	7.3	4.9	7.6	5.1	7.2	4.8
		2	9.9	6.6	7.9	5.3	7.5	5.0	7.9	5.3	7.4	4.9
		3	8.6	5.7	7.1	4.7	6.9	4.6	7.1	4.7	6.8	4.5
		4	8.2	5.5	6.7	4.5	6.6	4.4	6.7	4.5	6.4	4.3
3	I-75 at W Gardenia Ave	1	11.5	7.7	8.9	5.9	8.6	5.7	8.8	5.9	8.3	5.5
		2	10.0	6.7	7.9	5.3	7.7	5.1	8.0	5.3	7.6	5.1
		3	11.0	7.4	8.4	5.6	8.2	5.5	8.3	5.5	7.9	5.3
		4	11.6	7.8	9.2	6.1	8.5	5.7	9.3	6.2	8.4	5.6
4	North of 12 Mile Interchange at off-ramp	1	7.6	5.1	6.7	4.5	6.3	4.2	6.6	4.4	6.3	4.2
		2	9.4	6.3	7.9	5.3	7.5	5.0	8.1	5.4	7.4	4.9
		3	8.9	5.9	7.6	5.1	7.0	4.7	7.6	5.1	6.9	4.6
5	South of 14 Mile Rd at Whitcomb Ave	1	8.6	5.7	7.3	4.9	7.0	4.7	7.4	4.9	6.8	4.5
		2	8.7	5.8	7.5	5.0	7.0	4.7	7.6	5.1	6.8	4.5
6	North of Maple Rd at Larchwood Ave	1	8.5	5.7	7.2	4.8	6.9	4.6	7.3	4.9	6.8	4.5
		2	8.3	5.5	7.2	4.8	6.9	4.6	7.3	4.9	6.8	4.5
7	I-75/Rochester Rd Interchange	1	8.3	5.5	6.3	4.2	6.6	4.4	6.7	4.5	6.5	4.3
		2	11.4	7.6	8.1	5.4	8.4	5.6	8.9	5.9	8.3	5.5
		3	8.6	5.7	6.5	4.3	6.7	4.5	7.2	4.8	6.7	4.5
8	South of Wattles Rd at Old Creek Rd	1	9.2	6.1	7.8	5.2	7.4	4.9	8.0	5.3	7.5	5.0
		2	8.1	5.4	7.0	4.7	6.7	4.5	7.1	4.7	6.7	4.5
		3	6.4	4.3	5.9	3.9	5.7	3.8	5.9	3.9	5.7	3.8
9	South of Coolidge Hwy at Fleetwood	1	10.0	6.7	8.2	5.5	7.7	5.1	8.4	5.6	7.7	5.1
		2	8.6	5.7	7.3	4.9	6.9	4.6	7.4	4.9	6.9	4.6
10	I-75/Adams Rd Interchange	1	5.7	3.8	5.2	3.5	5.3	3.5	5.3	3.5	5.2	3.5
		2	6.6	4.4	5.9	3.9	5.9	3.9	6.0	4.0	5.8	3.9
11	North of Squirrel Rd at Brenthaven	1	7.8	5.2	6.7	4.5	6.6	4.4	6.8	4.5	6.7	4.5
		2	7.8	5.2	6.7	4.5	6.7	4.5	6.9	4.6	6.9	4.6

Source: The Corradino Group of Michigan, Inc.
Notes: A Persistence Factor of 0.67 was used to estimate 8-hour concentrations. The 1-hr background concentration (4.5 ppm) is the 1-hr, 2nd highest value recorded at the Oak Park Station (26-125-0001) in 2001. The 8-hr background concentration (3.0 ppm) is the 8-hr, 2nd highest value recorded at the Oak Park Station (26-125-0001) in 2001.

MOBILE6.2 is a computer program developed by EPA to generate emission factors for regulated pollutants for various vehicle types over a range of speeds. Though it has not yet been approved for use in modeling $PM_{2.5}$, it does contain information related to anticipated $PM_{2.5}$ trends. For example, the model will provide the grams per mile of $PM_{2.5}$ emissions from a heavy-duty diesel truck operating at various speeds. By comparing the emission factors over time, it is clear that $PM_{2.5}$ emissions are expected to continue to decrease (Figure 4-4), just as they have in the past as new pollutant controls have been implemented.

Figure 4-4
Emission Factor Trends – $PM_{2.5}$



In summary, air pollutants have been trending downward and are expected to continue to do so. The project would not result in any violations of current air quality standards as presently being applied. Conformity tests will be required for CO and ozone prior to the signing of the Record of Decision for the project. Conformity testing may be required for PM2.5, depending on when funding for the project is identified and when the project is included in SEMCOG's Regional Transportation Plan and Transportation Improvement Program.

4.8 Noise Analysis

This section summarizes existing and future noise conditions and where noise walls have been identified for consideration. It summarizes the results of a *Noise Study Report.* [11]

The noise unit used herein is the decibel (dB). The sound spectrum is expressed for human hearing in terms of an A weighting, so the unit is called dBA. A 10-dBA increase is a ten-fold increase in sound energy, but is perceived as a doubling of loudness. A 3-dBA increase is a two-fold increase in sound energy and is generally the smallest change in noise perceptible to most people outside of a laboratory setting.

4.8.1 Background and Guiding Criteria

To double the energy of sound and get a perceptible increase in noise, there must be twice as much traffic or the distance between a sound source and receiver must be halved. Neither will be the case with the proposed widening of I-75. Rather, traffic has already grown over the years to the point that noise guidelines are exceeded in some places. As a result, when a new project is proposed along I-75, noise mitigation must be considered.

[11] *Noise Study Report*, The Corradino Group, October 2003.

FHWA has promulgated noise abatement criteria, which have been incorporated into MDOT's Noise Policy (Table 4-12). For the exterior of residences, churches, hospitals, parks, and libraries, FHWA has established a noise guideline of 67 decibels (dBA), measured as an "average" of sound over a one-hour period (referred to as L_{Aeq1h}).[12] This level is not to be "approached or exceeded." Should the guideline at these sensitive receptors be approached or exceeded, noise abatement measures must be considered. "Approach" is defined in Michigan as a 1-dBA reduction from the maximum of 67 dBA. So, the effective criterion for consideration of mitigation is 66 dBA during the loudest hour of the day. Mitigation must also be considered if a project results in a substantial increase (10 dBA or more) in noise levels. Normally, mitigation is not considered in commercial areas.

Table 4-12
Noise Abatement Criteria
(Hourly A-Weighted Sound Level-decibels [dBA])

Activity Category	Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance, serve an important need, and where the preservation of those qualities is essential, if the area is to continue to service its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Source: State Transportation Commission Policy 10136 – Noise Abatement, Appendix A

Land uses fronting onto I-75 include low- and high-density residential areas, one school, and several churches. The 66-dBA criterion applies to all these areas. Noise modeling shows that many homes are exposed to noise levels exceeding abatement criteria today. Generally, these same areas will continue to exceed criteria with or without the project. But, where a new lane is built, noise will increase as a function of the increased traffic capacity (4 lanes instead of 3 lanes in each direction). Based on the mathematics of noise energy, if all other conditions are equal, the noise level increase associated with adding a lane in each direction would be only 1.2 dBA. This increase is imperceptible, but it adds to levels already above applicable criteria. So, mitigation must be considered. Noise level changes are, of course, also a function of the geometry of each site. When the road is reconstructed, this geometry changes. Noise modeling considers all these factors.

4.8.2 Existing Noise Conditions

Many of the receptors along I-75 today experience noise levels above 66 dBA. Noise measurements were made at 26 locations along the corridor following standard procedures with

[12] Title 23, Code of Federal Regulations (CFR), Part 772, revised April 1998.